Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (original)   A method for determining link utilization in an IP network, the method comprising:

collecting utilization values for links in the IP network over a predetermined polling period;

collecting topological information for links in the IP network; and

correlating the link utilization values with the topological information.

2.   (original)   The method for determining link utilization of claim 1, further comprising:

calculating aggregate link demand.

3.   (original)   The method for determining link utilization of claim 2, wherein calculating aggregate link demand comprises:

identifying the Point of Presence pairs connected by each link using the topological information;

summing the utilization values collected for each of the links connecting a Point of Presence pair over a predetermined time period; and

dividing the sum of link utilization values for each Point of Presence pair by the number of utilization values included in the sum.

4.   (original)   The method for determining link utilization of claim 1, wherein the predetermined time period is at least twice as long as the predetermined polling period.

5.   (original)   A method for determining link utilization in an IP network, the method comprising:

collecting link utilization values from routers in the IP network over a predetermined polling period;

collecting topological information from routers in the IP network;

correlating link utilization values with the topological information by identifying the Points of Presence pairs connected by each link for which a link utilization value was collected;

summing the link utilization values for each link connecting a pair of Points of Presence; and

dividing the sum of link utilization values for a pair of Points of Presence by the number of link utilization values included in the sum.

6.   (original)   The method for determining link utilization of claim 5, wherein collecting incoming and outgoing link utilization values from routers in the IP network further comprises each router transmitting SNMP messages using UDP transport protocol.

7.   (original)   The method for determining link utilization of claim 6, wherein collecting link utilization values from routers in the IP network comprises:

receiving an exponentially weighted moving average of link utilization measurements for a first short time frame; and

averaging the received moving average link utilization measurements over a second longer time frame.

8.   (original)   The method for determining link utilization of claim 6, wherein collecting link utilization values from routers in the IP network comprises:

receiving the total number of bytes transmitted over a link for a first short time frame; and

averaging the received total number of bytes over a second longer time frame.

9.   (original)   The method for determining link utilization of claim 6, wherein collecting link utilization values from routers in the IP network comprises:

receiving the total number of bytes received over a link for a first short time frame; and

averaging the received total number of bytes over a second longer time frame.

10.   (original)   The method for determining link utilization of claim 6, wherein collecting link utilization values from routers in the IP network comprises:

receiving the total number of bytes transmitted and received for a link over a first short time frame; and

averaging the received total number of bytes for a second longer time frame.

11. (original) The method for determining link utilization of claim 6, wherein downloading configuration information comprises downloading the name of each router, the Point of Presence containing each router, all active links connected to each router, and the destination of each active link connected to each router.

12. (original) The method for determining link utilization of claim 11, wherein collecting topological information from routers comprises downloading configuration information at predetermined time intervals.

13. (original) The method for determining link utilization of claim 12, wherein the predetermined time intervals at which configuration information is downloaded comprises one week.

14. (original) The method for determining link utilization of claim 13, wherein collecting incoming and outgoing link utilization values from the routers in the IP network comprises collecting incoming and outgoing link utilization values from all routers in the IP network.

15. (original) The method for determining link utilization of claim 14, wherein collecting topological information from routers in the IP network comprises collecting topological information from all routers in the IP network.

16. (original) A method for determining aggregate link utilization between two Points of Presence, the method comprising:

collecting link utilization values for each link connecting the two Points of Presence over a predetermined polling period;

summing the link utilization values for all links connecting the two Points of Presence over a predetermined measurement period;

dividing the sum by the number of link utilization values included in the sum to give an average; and

multiplying the average by the number of links connecting the two Points of Presence.

17. (original) The method for determining aggregate link utilization between two Points of Presence of claim 16, wherein collecting link utilization data for each link connecting the two Points of Presence comprises:

each router in the two Points of Presence providing incoming and outgoing link utilization information, the incoming and outgoing link utilization information being an average over a short period of time; and

averaging the incoming and outgoing link utilization information over a longer period of time.

18. (original) The method of determining aggregate link utilization between two Points of Presence of claim 17, wherein the incoming and outgoing link utilization information further comprises an exponentially weighted moving average.

19.   (original)   The method for determining aggregate link utilization between two Points of Presence of claim 18, wherein the longer period of time over which the incoming and outgoing link utilization information is averaged comprises ninety minutes.

20.   (original)   At least one machine readable media for causing at least one network management station in an IP network to perform a method for determining link utilization in an IP network, the method comprising:

collecting incoming and outgoing link utilization values from routers over a predetermined polling period;

correlating the link utilization values with the topological information;

summing the link utilization values collected over a first predetermined time period for all links connecting a pair of Points of Presence;

dividing the sum by the number of link utilization values included in the sum to give an average; and

collecting topological information from the routers at a second predetermined time intervals;

21.   (original)   The at least one machine readable media of claim 20, the method further comprising:

multiplying the average by the number of links connecting the pair of Points of Presence.

22.   (original)   The at least one machine readable media of claim 21, wherein the first predetermined time period is at least twice as long as the polling period.

23.   (original)   The at least one machine readable media of claim 22, wherein the polling period comprises five minutes.

24.   (original)   The at least one machine readable media of claim 23, wherein the first predetermined time period comprises ninety minutes.

25.   (original)   The at least one machine readable media of claim 24, wherein the second predetermined time intervals comprise one week.